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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,593	11/28/2000	Shinichiro Omi	2000 1633A	5233

7590 08/25/2004

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EXAMINER

JUNTIMA, NITTAYA

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/722,593

Applicant(s)

OMI ET AL.

Examiner

Nittaya Juntima

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>papers no. 2,4</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because in Fig. 9, "FIG. 10" and "FIG. 11" should be changed to "FIGs. 10 and 11" and "FIG. 11," respectively. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claims 1, 2, 5, 9, 11, and 21 are objected to because of the following informalities:

- the language in the parenthesis of claims 1, 2, 5, 9, and 11 is not considered as part of the claimed limitation; to be considered it has to be incorporated into the claims without the parenthesis;

- in claim 21, ll 7, "and" should be changed to "or," see specification on page 37, ll 20-25,

ll 7-8, "said band assignment packet next" should be changed to "a following assignment packet,"

ll 8, "are" should be changed to "is,"

ll 11, "following" should be added in front of "band," and

ll 12, "next" should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is vague and indefinite because it is unclear where the preamble ends and where the claim body starts. A correction is required.

Further, claim 1, ll 12, the limitations "the master station" and "the slave stations" lack antecedent basis.

Claim 2, ll 13, the limitation "said empty bandwidth" lacks antecedent basis.

Claim 3, ll 11-12, the limitation "said previously-set communication parameters" lacks antecedent basis.

Claim 9, ll 6 "the priority parameter" lacks antecedent basis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-2, 9, 16, and 18** are rejected under 35 U.S.C. 102(e) as being anticipated by Bauchot (USPN 5,970,062).

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Per **claim 1**, as shown in Fig. 1A, Bauchot teaches a wireless access unit/a master station (access point 18, col. 6, ll 50-58 and col. 7, ll 5-17) for managing a wireless network (wireless network as shown in Fig. 1A) and one or more other wireless access units/slave stations (mobile terminals 10, 12, col. 6, ll 50-58 and col. 7, ll 5-17) are on the wireless network, and supports data of one or a combination of communication types including CBR, VBR, ABR, and UBR (Table 3), said master station (access point 18) comprising a scheduler (scheduler 84 in Fig. 4) for scheduling transmission band assignment (slot map) which includes information about transmission timing of the data (time slot(s)), a transmission amount (allocated bandwidth), and the master station or any of the slave stations that is allowed to access (col. 9, ll 21-42); in order to make a request for setting a communication link (ATM connection) for data transmission, said master station providing said scheduler with a communication parameter (ATM connection service parameter) for the data transmission (col. 6, ll 60-62, col. 9, ll 37-45, col. 13, ll 41-50); said slave station providing said scheduler with a communication parameter (ATM connection service parameter) for the data transmission to said master station by using a request packet (time slot reservation request) (col. 6, ll 60-62, col. 9, ll 37-45, col. 13, ll 41-50); said master station giving the transmission band assignment (slot map) scheduled by said scheduler to said slave station by using a band assignment packet (FH packet) and recognizing the transmission band assignment (col. 8, ll 21-42, see also Fig. 4 and col. 13, ll 30-50); a transmitting station including said master station (access point 18) or said slave station (mobile terminal 10 or 12) that sends the data and a receiving station including said master station (access point 18) or said slave station (mobile terminal 10 or 12) that receives the data between which the communication (ATM

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connection) is set by said transmission band assignment (slot map) carrying out bi-directional data transmission according to the transmission band assignment (col. 8, ll 6-42, Fig. 4, and col. 13, ll 36-50).

Per **claim 2**, Bauchot teaches that when the communication type indicated by said communication parameter (ATM connection service parameter) is CBR, VBR, or ABR, said scheduler (scheduler 84 in Fig. 4) rejects the request (time slot reservation request) for setting the communication link (ATM connection) if a transmission bandwidth required the communication link exceeds an unused transmission bandwidth or empty bandwidth (col. 9, ll 15-23 and 37-45, col. 10, ll 12-22, Table 3, see also col. 6, ll 60-62), and receives the request for setting the communication link and updates a sum of transmission bandwidths in use for already-allocated communication links if otherwise (col. 9, ll 15-23 and 37-45, col. 10, ll 12-22, Table 3, and col. 14, ll 46-67 and Fig. 5), when the communication type indicated by said communication parameter (ATM connection service parameter) is UBR, said scheduler receives the request for setting the communication regardless of the unused bandwidth (scheduler inherently receives the UBR request regardless whether the allocation is made, col. 9, ll 15-23 and 37-45, col. 10, ll 12-22, Table 3, and col. 14, ll 46-67 and Fig. 5, see also col. 6, ll 60-62).

Per **claim 9**, Bauchot teaches that when the communication type indicated by said communication parameter (ATM connection service parameter) is UBR, said scheduler carries out the transmission band assignment (slot map) according to a priority order of a priority parameter (not defined, reads on ATM service parameter, i.e. UBR) included in said communication parameter (col. 6, ll 60-62, col. 9, ll 15-23 and 37-45, col. 10, ll 12-22, Table 3, and col. 14, ll 46-67 and Fig. 5).

Per **claim 16**, Bauchot teaches that when transmission band assignment (slot map) for data transmission has been carried out by said scheduling (col. 8, ll 7-10, 21-42), said transmitting station (e.g. mobile terminal 10 in Fig. 1A) divides the data into a specified length for generating data packets (ATM cells) for transmission (col. 10, ll 61-col. 11, ll 19).

Per **claim 18**, Bauchot discloses that said transmitting station (e.g. mobile terminal 10 in Fig. 1A) transmits said request packet (time slot reservation request) by using a transmission band (time slot allocated during UP_RESERVED period) in which a communication link is set (col. 9, ll 37-42).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 3, 12, 13, and 14**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauchot (USPN 5,970,062).

Per **claim 3**, Bauchot teaches that the scheduler (scheduler 84 in Fig. 4) determines the transmission band assignment (slot map) so as to satisfy the communication parameter (col. 6, ll 60-62, col. 8, ll 21-38, and col.9, ll 15-23).

However, Bauchot fails to teach a state of data, an acknowledgement packet, and determining said transmission band assignment so as to reflect said state of.

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It is well known that as part of an error control and recovery in data transmission, an acknowledgement packet is used to inform the transmitting party of the state of the transmitted data, e.g. error-free or retransmission is needed. Therefore, it would have been obvious to one skilled in the art to modify the teaching of Bauchot to enable the scheduler to recognize a state of data receiving for each communication link (ATM connection) by receiving, from the receiving station (e.g. access point 18 in Fig. 1A), an acknowledgment packet indicating the state of data receiving as to the bi-directional data transmission in which the communication link is set, and to determine said transmission band assignment (slot map) so as to reflect said state of data receiving. The suggestion/motivation to do so would have been to provide error control and recovery in addition to improving the overall efficiency and successful transmission in the system.

Per **claim 12**, Bauchot does not teach deleting setting of the communication link when detecting that the transmission band of the set communication link is not used.

However, it would have been obvious to one skilled in the art to include when detecting that the transmission band (time slot(s)) of the set communication link is not used, said scheduler (scheduler 84 in Fig. 4) deletes setting of the communication link as recited in the claim in order to simply increase the bandwidth efficiency of the overall system.

Per **claim 13**, Bauchot fails to teach that when assigning data packet transmission from the transmitting station to each transmission band (time slot) with the communication link set therein a predetermined number of times, said scheduler assigns transmission of said acknowledgement packet from said receiving station at least once.

It is well known that an acknowledgment can be transmitted to the transmitting party at the end of each received packet or periodically as part of an error control and recovery.

It would have been obvious to one skilled in the art to modify the teaching of Bauchot to include when assigning data packet transmission from the transmitting station to each transmission band (time slot) with the communication link set therein a predetermined number of times, said scheduler assigns transmission of said acknowledgement packet from said receiving station at least once as recited in the claim. The motivation/suggestion to do so would have been to provide an error control and recovery to the system.

Per **claim 14**, Bauchot does not teach that said scheduler carries out transmission band assignment (slot map) by dynamically changing a data packet based on communication quality of a wireless channel so that a packet length is shortened when more communication errors occur, and lengthen when fewer.

However, Bauchot mentions that in an analogous art such as in conventional wireless LAN, the frames to be carried over the wireless channel are typically large so that they may require some segmentation (a data packet) before being transmitted where a too large segment size induces bad block error rate and a too small segment size induces bad protocol efficiency, therefore a good balance between large and small is required (col. 10, ll 55-61, see also ll 61-col. 11, ll 19).

Therefore, it would have been obvious to one skilled in the art to enable said scheduler to carry out transmission band assignment (slot map) by dynamically changing a data packet based on communication quality of a wireless channel so that a packet

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length is shortened when more communication errors occur, and lengthen when fewer as recited in the claim. The suggestion/motivation to do so would have been to provide a good balance between a too large packet and a too small packet to minimize error rate and system inefficiency.

Allowable subject matter

7. Claims 4-8, 10-11, 15, 17, and 19-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 703-306-4821. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
August 23, 2004

NS



KENNETH VANDERPUYE
PRIMARY EXAMINER